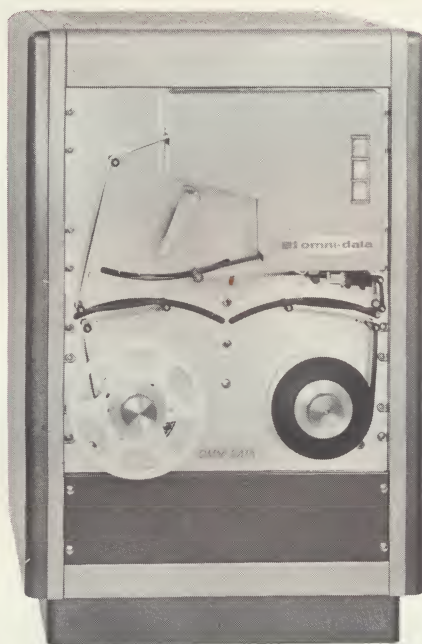
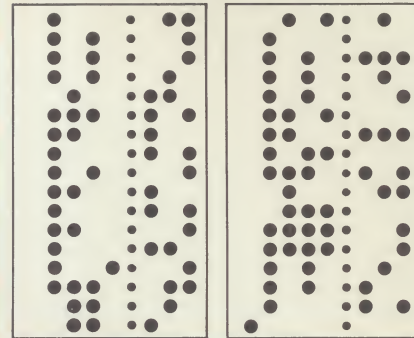


omni-data

electrostatic PAPER-TAPE RECORDER



The OMNI-DATA® Recorder, Model ETR-7, shown at left with Model RS-200 Reeler. Above, a section of 1-inch paper tape with code and optional edge-printed alphanumeric characters.

The OMNI-DATA® Recorder, Model ETR-7, fulfills essentially the function of a mechanical tape punch, but at far greater speeds and with far higher reliability than can be expected of tape-punching equipment.

Instead of punching, the electrostatic recording process fixes black powdered-ink spots on the tape in the identical code configuration as that used on punched tape. The resulting chadless tape may be visually interpreted or read by a reflected-light tape reader such as the OMNI-DATA PTR-80 or PTR-81. This recording technique also permits information-packing density as much as twice that possible on punched tape.

A high-resistivity plastic-coated paper tape with a conductive backing is passed through the "writing" head, which consists of two sets of closely-separated electrodes. Pulsing the electrodes leaves an electrostatic charge on the surface of the tape. The tape is then passed through dry powdered ink which adheres to the charged areas in tiny capsule-shaped spots. These spots are then permanently fixed. The entire process—on-line, dry, and non-mechanical—is completed at the rate of 60 inches of tape per second.

The recorder accepts standard data pulses for from 5 to 8 data channels plus sprocket channel, using tape widths of 11/16" to 1 1/4". The completely self-contained unit is compatible with all OMNI-DATA Tape Readers and Reelers.

GENERAL  ELECTRIC

FEATURES

- Non-impact recording eliminates mechanical punches
- High reliability over long time at high speeds
- Visible data on chadless paper tape

- Minimum maintenance, no chad-disposal problem
- Simple, complete controls
- Capsule-shaped data bits enhance reading reliability

- Wide input-signal range assures reliability of recording and reading
- Compatible with all OMNI-DATA tape readers and reelers

- Compact and clean
- Lightweight
- Shielded ball bearings throughout

SPECIFICATION

TAPE AND MECHANICAL

TAPE SIZES: 11/16" to 1 1/4" with 5 to 8 data channels plus sprocket channel in normal punched-tape formats.

TAPE SPEEDS: Any discrete speed up to 60 inches per second selected by pre-set pulley-and-belt arrangement.

START TIME: 5 milliseconds maximum.

STOP TIME: May be 3 milliseconds maximum or 1 character space at customer request.

PAPER HANDLING: Compatible with OMNI-DATA RS-series reelers.

FIXING: Permanent fixing of data.

CONTROLS AND INDICATORS

Two illuminated control switches and an alternate-action indicator are provided:

1. Power on-off switch—illuminates when power is on.
2. Start-stop switch—illuminates for either condition.
3. Load Tape and Ready switch—Tape-drive mechanism is disengaged to facilitate tape loading. Illuminated indicator shows when recorder is ready for operation.

ELECTRICAL

INPUT-SIGNAL LEVELS:

- 6 to —12 volts for mark (recorded spot)
- 0 to ± 1 volt for space (unrecorded spot)
- 6 to —12 volt transition on sprocket channel is used to gate information channels

ELECTRICAL CONTROLS:

1. —6 to —12-volt signal on each of two lines, one for start and one for stop.
2. Positive-going 10-volt pulses initiate alternate start and stop.
3. Closure of contacts provided also initiates alternate start and stop.

GENERAL

POWER: 115 volts $\pm 10\%$, 60 cps, single phase, approx. 700 watts.

DIMENSIONS: 19" W x 12 1/4" high, 3" max. projection from panel.

WEIGHT: 60 pounds.

OPTIONS: Edge-printed alphanumeric characters, speeds up to 100 ips, higher data-packing density, and other variations.

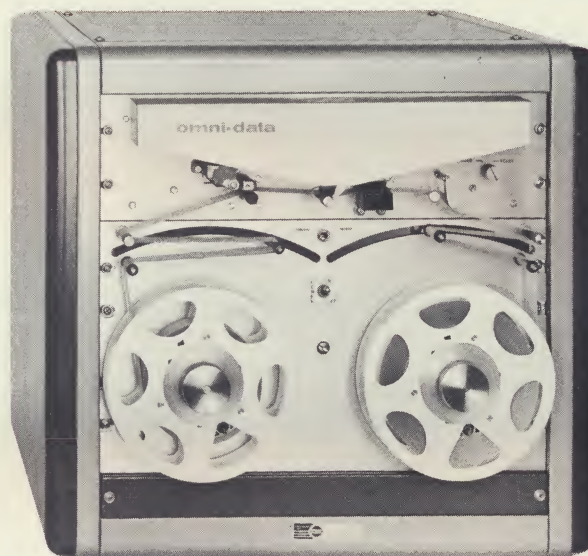
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566—5M

GENERAL  ELECTRIC

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omni-data PAPER-TAPE REELERS



Model RS-200 Reeler (unidirectional)
shown with OMNI-DATA Model
PTR-80 Photoelectric Tape Reader

Omnitronics presents the OMNI-DATA RS-200/300 series of high-performance reelers for all bidirectional or unidirectional paper-tape applications at tape speeds up to 60 inches per second.

Model RS-200 is a unidirectional reeler which feeds tape forward (from right to left) at up to 60 ips under control of reader, punch, or OMNI-DATA recorder, and rewinds under its own control at average speeds from 60 to 100 ips.

Model RS-300, bidirectional, features 60-ips operation in both forward and reverse modes under complete control of the unit being fed.

RELIABILITY WITH SIMPLICITY

Design improvements by Omnitronics have made these the most reliable paper-tape reelers in their application range. Control systems, tension arms, tape drive and braking mechanisms—all have been designed to meet the highest performance standards in a field where reliability and simplicity are paramount requirements.

TAPE SPILLAGE AND BREAKAGE ELIMINATED

Positive braking and individual reel-speed controls automatically compensate for reel-speed changes as tape supply builds up on one reel and decreases on the other. Spillage and breakage of tape, a problem on earlier reelers during rewind or switching of direction, have thus been eliminated in the design of the OMNI-DATA Series RS-200/300 reelers.

OMNITRONICS, INC.

SUBSIDIARY OF BORG-WARNER CORPORATION

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BW
BORG-WARNER

FEATURES

SPECIFICATION

- High-speed operation
- Bi-directional (RS-300) or unidirectional (RS-200)
- Adaptable to all systems

TAPE SPEEDS:

RS-200: Forward—any speed up to 60 ips under reader, punch, or recorder control; rewind—average from 60 to 100 ips depending on amount of tape on reels.
RS-300: Any speed up to 60 ips in either direction under reader control.

REEL SIZES: Standard NAB reel up to 8" diameter under all conditions; 10½"-diameter reel under special conditions.

- Constant tape tension
- Dependable transport mechanisms
- Reader control plus optional manual switches

TENSION ARMS: Spring-loaded tension arms control tape feed and maintain constant tape tension and slack take-up under all operational modes.

CONTROLS:

RS-300: When used with OMNI-DATA bidirectional tape reader, only a Power On/Off switch is provided, since Forward/Reverse controls are incorporated in the reader. However, a Forward/Reverse switch can be provided on request.

RS-200: Power On/Off switch and Forward/Rewind switch are provided.

- Simple reel change
- Positive reel braking
- No tape spillage or breakage

HUBS: Quick-release precision hubs facilitate rapid reel change.

INDICATORS: The dancer-arm control includes taut-tape and end-of-tape sensing to prevent tape spillage or breakage should one of these conditions occur. Alarms or indicators are optional features which notify operator of these conditions.

- Lightweight
- Compact

DIMENSIONS: Designed for standard rack mounting. 19" W, 10½" H, 10¼" D, with approximate 2¼" front panel extension.

WEIGHT: 30 pounds without reels.

POWER REQUIREMENT: 115 volts $\pm 10\%$, 60 cps, single phase, 150 watts.

SPECIFICATION, THROUGH PRODUCT
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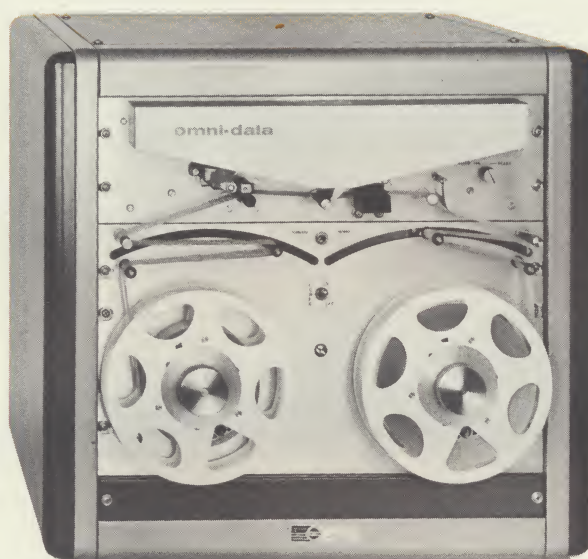
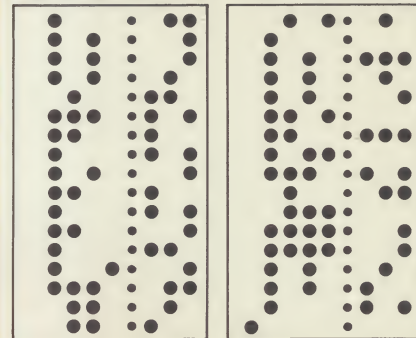
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BORG-WARNER

PAPER-TAPE REELERS

omni-data



Model RS-200 Reeler (unidirectional)
shown with OMNI-DATA Model
PTR-80 Photoelectric Tape Reader

General Electric presents the OMNI-DATA RS-200/300 series of high-performance reelers for all bidirectional or unidirectional paper-tape applications at tape speeds up to 60 inches per second.

Model RS-200 is a unidirectional reeler which feeds tape forward (from right to left) at up to 60 ips under control of reader, punch, or OMNI-DATA recorder, and rewinds under its own control at average speeds from 60 to 100 ips.

Model RS-300, bidirectional, features 60-ips operation in both forward and reverse modes under complete control of the unit being fed.

RELIABILITY WITH SIMPLICITY

Design improvements by General Electric have made these the most reliable paper-tape reelers in their application range. Control systems, tension arms, tape drive and braking mechanisms—all have been designed to meet the highest performance standards in a field where reliability and simplicity are paramount requirements.

TAPE SPILLAGE AND BREAKAGE ELIMINATED

Positive braking and individual reel-speed controls automatically compensate for reel-speed changes as tape supply builds up on one reel and decreases on the other. Spillage and breakage of tape, a problem on earlier reelers during rewind or switching of direction, have thus been eliminated in the design of the OMNI-DATA Series RS-200/300 reelers.

GENERAL  ELECTRIC

FEATURES

- High-speed operation
- Bi-directional (RS-300) or unidirectional (RS-200)
- Adaptable to all systems

- Constant tape tension
- Dependable transport mechanisms
- Reader control plus optional manual switches

- Simple reel change
- Positive reel braking
- No tape spillage or breakage

- Lightweight
- Compact

SPECIFICATION, THROUGH PRODUCT IMPROVEMENT, SUBJECT TO CHANGE WITHOUT NOTICE.

566-5M

SPECIFICATION

TAPE SPEEDS:

RS-200: Forward—any speed up to 60 ips under reader, punch, or recorder control; rewind—average from 60 to 100 ips depending on amount of tape on reels.

RS-300: Any speed up to 60 ips in either direction under reader control.

REEL SIZES: Standard NAB reel up to 8" diameter under all conditions; 10½"-diameter reel under special conditions.

TENSION ARMS: Spring-loaded tension arms control tape feed and maintain constant tape tension and slack take-up under all operational modes.

CONTROLS:

RS-300: When used with OMNI-DATA bidirectional tape reader, only a Power On/Off switch is provided, since Forward/Reverse controls are incorporated in the reader. However, a Forward/Reverse switch can be provided on request.

RS-200: Power On/Off switch and Forward/Rewind switch are provided.

HUBS: Quick-release precision hubs facilitate rapid reel change.

INDICATORS: The dancer-arm control includes taut-tape and end-of-tape sensing to prevent tape spillage or breakage should one of these conditions occur. Alarms or indicators are optional features which notify operator of these conditions.

DIMENSIONS: Designed for standard rack mounting. 19" W, 12½" H, 10¼" D, with approximate 2¼" front panel extension.

WEIGHT: 30 pounds without reels.

POWER REQUIREMENT: 115 volts $\pm 10\%$, 60 cps, single phase, 150 watts.

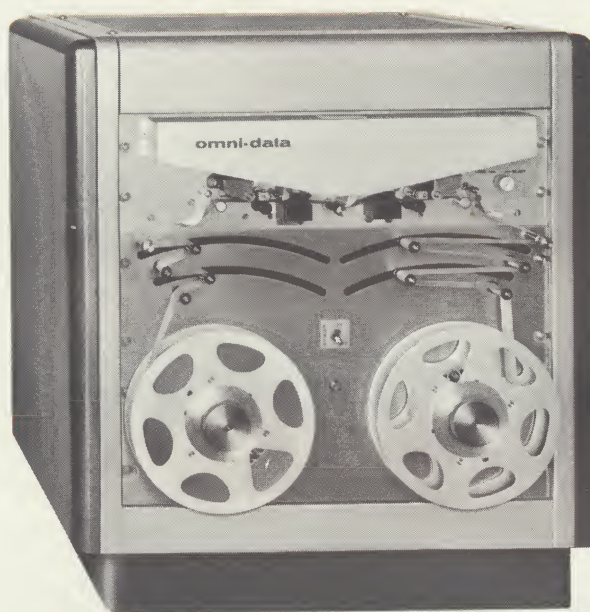
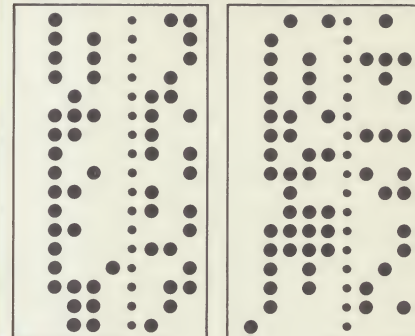
GENERAL  ELECTRIC

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very-high-speed

PAPER-TAPE REELERS

omni-data



OMNI-DATA Model RS-600 Reeler
shown with Model PTR-91 Photo-
electric Tape Reader

The new OMNI-DATA RS-500/600 series of tape reelers permits continuous bidirectional or unidirectional operation of paper-tape systems at tape speeds up to 100 inches per second.

Model RS-500 is a unidirectional reeler with forward (right-to-left) tape motion up to 100 ips under control of reader, punch, or OMNI-DATA recorder, and rewind capability under its own control at average speeds (left-to-right) up to 150 ips.

Model RS-600, bidirectional, offers 100-ips operation in both forward and reverse modes under complete control of the unit being fed.

DOUBLE DANCER ARMS on both models enable these reelers to operate at their very high paper speeds without excessive back-and-forth motion of the arms. This feature increases control of tape feed, stop, and reversal; adds considerable stability; and reduces wear on all mechanical components in the reelers.

TAPE SPILLAGE AND BREAKAGE HAVE BEEN ELIMINATED through positive reel braking and individual reel-speed control, which automatically compensates for the increasing and decreasing tape supply on each reel.

GENERAL  ELECTRIC

FEATURES

- Very-high-speed operation
- Bidirectional (RS-600) or unidirectional (RS-500)
- Adaptable to all systems

- Constant tape tension
- Dependable transport mechanisms
- Reader control plus optional manual switches

- Simple reel change
- Positive reel braking
- No tape spillage or breakage

- Lightweight
- Compact

SPECIFICATION

TAPE SPEEDS:

RS-500: Forward—any speed up to 100 ips under reader, punch, or recorder control; rewind—average from 125 to 150 ips depending on amount of tape on reels.

- RS-600: Any speed up to 100 ips in either direction under reader control.

REEL SIZES: Standard NAB reel up to 8" diameter under all conditions; 10½"-diameter reel under special conditions.

TENSION ARMS: Spring-loaded double dancer arms control tape feed and maintain constant tape tension and slack take-up under all operational modes.

CONTROLS:

RS-600: When used with OMNI-DATA bidirectional tape reader, only a Power On/Off switch is provided, since Forward/Reverse controls are incorporated in the reader. However, a Forward/Reverse switch can be provided on request.

RS-500: Power On/Off switch and Forward/Rewind switch are provided.

HUBS: Quick-release precision hubs facilitate rapid reel change.

INDICATORS: The dancer-arm control includes taut-tape and end-of-tape sensing to prevent tape spillage or breakage should one of these conditions occur. Alarms or indicators are optional features which notify operator of these conditions.

DIMENSIONS: Designed for standard rack mounting. 19" W, 12½" H, 10¼" D, with approximate 2¼" front panel extension.

WEIGHT: 38 pounds without reels.

POWER REQUIREMENT: 115 volts $\pm$ 10%, 60 cps, single phase, 220 watts.

SPECIFICATION, THROUGH PRODUCT
IMPROVEMENT, SUBJECT TO CHANGE
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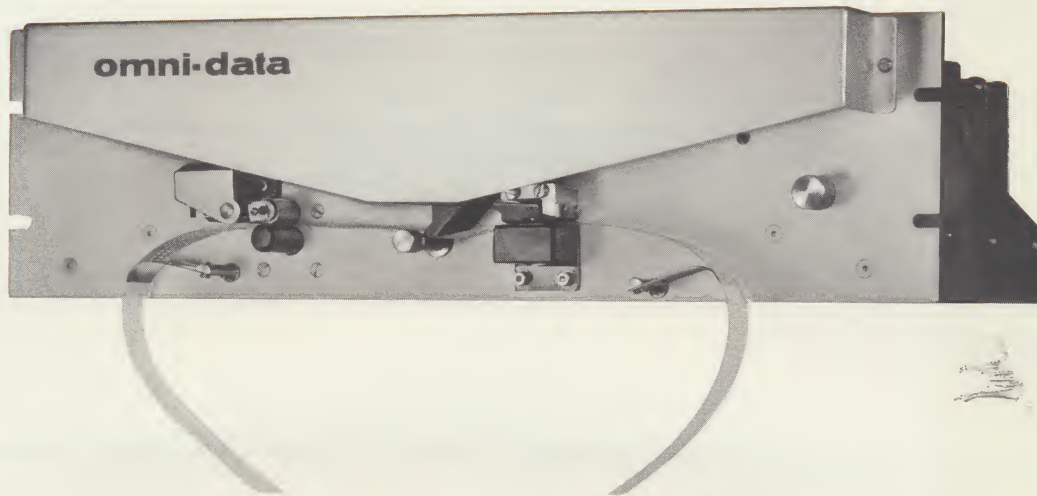
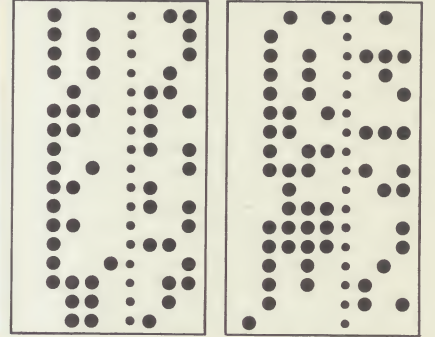
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photoelectric TAPE READERS

omni-data



These new low-cost OMNI-DATA Photoreaders, Models PTR-80 (unidirectional) and PTR-81 (bidirectional), utilize the exclusive General Electric principles of *reflected light* and *a-c coupling* in the reading of coded paper tape. They are particularly applicable for inclusion in digital data-handling, communications, numerical tool control, ground support, and other systems.

REFLECTED LIGHT permits the most reliable reading of any kind of tape—opaque or transparent, pastel or dark-colored, punched or OMNI-DATA recorded, oiled or unoiled—without adjustment of amplifiers or specification on allowable tape opacity.

A-C COUPLING results in greater stability in long-time operation under varying temperatures by eliminating the drift problem inherent in d-c photodiodes and amplifiers. There are no electrical adjustments and no variable electrical components in these photoreaders.

HIGH READING AND START-AND-STOP RATES • Both models offer high reliability at synchronous reading speeds up to 500 characters a second. In addition, they have achieved a new order of speed in asynchronous (start-and-stop) operation: Set to stop after each character and await a command to proceed to the next, the PTR-80 and 81 can go through this cycle at a rate up to 200 characters a second.

LOW PRICE • Recent General Electric design advances have permitted the offering of these new photoelectric tape readers at the lowest prices in their performance range.

GENERAL  ELECTRIC

FEATURES

- Reads punched or printed tapes
- Reads colored, translucent, or transparent tapes
- Reads up to 500 characters per second synchronously, up to 200 characters per second asynchronously
- Bidirectional (PTR-81) or unidirectional (PTR-80)
- No mechanical adjustments in drive mechanism

- Simple, complete controls

- All-solid-state electronics
- No amplifier adjustments necessary
- AC coupling of photodiodes and amplifiers
- RFI minimized
- No variable components

- Weighs only 18 lb.
- Ultra-compact
- No cooling required in normal ambient temperatures
- Long service life assured

SPECIFICATION, THROUGH PRODUCT IMPROVEMENT, SUBJECT TO CHANGE WITHOUT NOTICE.

566—5M

SPECIFICATION

TAPE AND MECHANICAL

TAPE WIDTHS— $1\frac{1}{16}$ ", $1\frac{3}{16}$ ", $\frac{7}{8}$ ", or 1", with 5, 6, 7, or 8 data channels plus sprocket.

TAPE SPEEDS—20", 30", 40", or 50" per second by changing timing belts and pulleys.

TAPE FORMS—any kind of coded paper tape (opaque or transparent; oiled or unoled; dark or light-colored; OMNI-DATA recorded; strips, loops, or reeled).

READING SPEEDS—200, 300, 400, or 500 characters per second synchronously; 200 characters per second asynchronously.

START TIME—Less than 3 milliseconds.

STOP TIME—Less than 1 millisecond.

CONTROLS

MANUAL—Front-panel "Load Tape/Ready" switch.

ELECTRICAL—AC power on-off via external switch or relay contacts.

Tape transport start-stop (two-line control)—

To start tape: $-6V @ 1.6 \text{ ma}$ on Start line *and*
 $\pm 0.5V$ (any impedance) on Stop line.

To stop tape: $-6V @ 1.6 \text{ ma}$ on Stop line *and*
 $\pm 0.5V$ (any impedance) on Start line.

Pulse operation of either function may be effected by pulse of minimum duration of 10 μsec .

ELECTRICAL

TAPE-READ SECTION—Silicon photodiodes provided for up to 8 data channels plus sprocket. Solid-state electronics throughout. All channels a-c-coupled. Single etched circuit for easy maintenance.

OUTPUT VOLTAGES—

Hole or mark: $-10V$ open-circuit; source resistance 1,000 ohms.

No-hole or space: 0 to $-0.2V$ at up to 10 ma.

SIGNAL CONNECTOR—Cannon DB-25S.

POWER IN—6 ft 3-wire line cord.

RFI generation and susceptibility minimized.

GENERAL

DIMENSIONS—19" W x $5\frac{1}{4}$ " H x 10" D, notched for standard EIA spacing. Front-panel projection less than 2".

WEIGHT—18 pounds.

POWER REQUIREMENT— $115V \pm 10\%$, 60 cps ± 0.5 cps, 160 watts (maximum).

Will operate in free-convection ambient up to 45°C .

GENERAL  ELECTRIC

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